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GEOGRAPHICAL NOTES.

BY

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THE GREATEST DEPTH OF THE OCEAN.—Adm. W. J. L. Whar-ton, R. N., sends the following letter to *Nature*, of October 3:

A deeper spot in the ocean than any yet known has been recently found by H. M. surveying ship *Penguin*. Unfortunately the observation was not complete, as a fault in the wire caused it to break when 4,900 fathoms had run out without bottom having been reached.

Commander Balfour reports that this occurred in lat. $23^{\circ} 40' S.$, long. $175^{\circ} 10' W.$, about 60 miles north of a sounding of 4,428 fathoms obtained by Capt. Aldrich in 1888. A previous attempt to reach bottom had been foiled by a similar accident to the wire when 4,300 fathoms had passed out, and the rising wind and sea prevented any further attempt at the time. As the deepest cast hitherto obtained is one of 4,655 fathoms near Japan, it is at any rate certain that the depth at the position named is at least 245 fathoms greater.

It is hoped that before long a more successful attempt to find the actual depth will be made.

The sounding of 4,655 fathoms was made in the *Tuscarora* in 1874, by Commander, now Rear-Admiral, Belknap, U. S. N., who expressed himself as follows, in a letter written to the New York *Sun*, from Brookline, Mass., under date of November 18, 1895:

Referring to the brief mention in the *Sun* of the 15th inst. of the deep-sea sounding made by Commander Balfour of H. B. M. S. *Penguin*, in that region of the South Pacific a little south of the Tonga, or Friendly Islands, let me say that in so far as I have been able to gather the facts of that sounding, the actual depth was not determined at all. The wire broke when 4,900 fathoms had run out without giving any sign of the sinker having touched bottom. In a previous attempt of the *Penguin* in that locality, the wire had broken when 4,300 fathoms had run off the drum. The brief report of those soundings, printed in *Nature*, gives no hint as to whether the undercurrents of the ocean entered in any way into the incidents of those deep casts, though mention is made of strong wind and considerable sea.

The *Tuscarora*, when sounding off the east coast of Japan in 1874, and at a distance of about 100 miles from the land, had the wire break when 4,643 fathoms had run out. In that case the current of the Black Stream of Japan swept the wire from the perpendicular and, by the stress of its flow, not only prevented a correct sounding, but caused the wire to part.

No further effort was made to get at the depth in that locality, for there was neither time nor wire to spare for that purpose; nor was it believed that a submarine cable could be successfully laid in such deep water swept by so strong a current.

In the *Tuscarora's* experience the ocean undercurrents played strange freaks now and then with the wire. The trend of the wire would change in direction, and some-

times a movement would be observed, as though a big fish had seized the sinker in his mouth and was swimming off with it.

The scene of the recent deep-sea soundings of the *Penguin*—the deep submarine valley in the neighborhood of the Friendly and Cook Islands, which would seem to be as remarkable as the great depression of the ocean bed discovered by the *Tuscarora* off the east coast of Japan in 1874—was first indicated by H. B. M. S. *Egeria*, Capt. Pelham Aldrich, R. N., in 1888, when several soundings in depths of over 4,000 fathoms were made, the deepest being in 4,428 fathoms. The next year, 1889, Commander C. F. Oldham, R. N., who had relieved Capt. Aldrich in command of the *Egeria*, had the good fortune to find still deeper water, a depth of 4,530 fathoms, in that region of ocean.

It is a notable fact that the *Challenger*, in her tracks in the South Pacific on her famous expedition round the world, 1872--76, just missed the great trough developed by the work of the *Egeria* and *Penguin*. Indeed, up to the date of the *Egeria's* work in the South Pacific the greatest depth found south of the equator, either in the Atlantic or the Pacific, had been sounded by the U. S. S. *Alaska*, Capt. Belknap, in July, 1881, about 100 miles west of Callao Bay, Peru, where a depth of 3,367 fathoms was disclosed.

THE GEOGRAPHICAL SOCIETY OF LISBON is duly authorized to announce that in the year 1897 the Portuguese nation, under the presidency of the King and his government will commemorate with public rejoicings and with every possible solemnity the departure from Lisbon of the expedition commanded by Vasco da Gama, which opened the ocean highway to the Orient.

The general plan of the celebration, elaborated by the Geographical Society, has received the approval of the Government and will be made known in a future communication.

AUTOGRAPH LETTERS OF MERCATOR.—Lieut. F. Van Ortrooy prints, in Vol. IV, No. 3, Fifth Series of the *Compte Rendu* of the Royal Historical Commission (Belgium), four autograph letters addressed by Mercator in 1585 and 1586 to Henry von Rantzau, governor of Schleswig and of Holstein. The originals are preserved in the Palatine Library at Vienna. All were written at Duisburg.

The first letter has no special interest. In the second and third Mercator refers to the astrological studies, to which von Rantzau devoted himself, and points out to him in one place that, in making predictions for the year 1588, he will do well to note the fact that with it closes a period of 70 years from the first utterance of their doctrines by Luther and Zwingli, and that this period is to be compared with the 70 years of the Babylonish Captivity.

The fourth letter acknowledges the receipt of a gift from von Rantzau, and describes the progress of the maps on which Mercator

was then engaged, and the expected arrival of some documents relating to Poland and Livonia;

When these come to hand—he says—I shall set to work and measure everything exactly.

It is in this regard for accuracy, as Lieut. Van Ortrov remarks, that the merit of Mercator consists.

This letter was written in the midst of tumults. Alexander Farnese had just taken Neuss by storm, and the picture of the war then raging is drawn in a few lines:

There is nothing new here, except that all things are miserable, where once we enjoyed the greatest peace and tranquillity. It is a cruel war, in which no one is spared; whether friends or neutrals, all are treated alike; hunger and scarcity of bread on every hand; and unless God put an end to the war, it is feared that very many will die of starvation, especially in France where, they say, the corn crop has been very short this year.*

THE ANDREA BIANCO MAP OF 1448, AND A SUPPOSED DISCOVERY OF BRAZIL IN 1447.—Under this title Signor Carlo Errera presents, in the *Memorie* of the Italian Geographical Society, Vol. V, Part 1, a careful study of this early map, which is preserved in the Ambrosian Library at Milan.

It is upon his interpretation of an inscription in this document that Mr. H. Yule Oldham constructs his theory of a Portuguese discovery of America, 45 years before the First Voyage of Columbus.†

The map is unique among Italian charts of the Middle Ages in that it is intended to represent only the western coast of Europe and Africa, and does not take in the basin of the Mediterranean. The European coast is shown from Heligoland to the Straits of Gibraltar, and the coast of Africa from the Straits to the farthest southern limit then known. Beyond the coast nothing is marked except, in Europe, a few river cities, and, in Africa, some water courses and imaginary mountains in the interior.

The Atlantic islands are delineated, with the errors characteristic of the cartography of the period. Scotland stretches so far to the north that it is cut off by the upper edge of the map. Its higher coast is without a name, and on the west appears only the Solway

* *Novi hic nihil est, nisi quod tristia sunt omnia ubi summa pax et tranquillitas esse solet. Bellum crudele, in quo nulli parcitur; sit amicus, sit neutralis, aequa sorte tractantur omnes; fames et magna caritas panis ubique; et nisi abbreviet Dominus bellum hoc, quam plurimos inedia perituros timetur, praecipue in Gallia, ubi hoc anno exiguum admodum frumenti proventum fuisse aiunt.*

† A Pre-Columban Discovery of America, by H. Yule Oldham, M.A.—(*The Geographical Journal*, March, 1895.)

Firth. A strait from sea to sea separates Scotland from England. Ireland is much the same as in other maps of the time, but Bianco has added a good many names to the chain of islands drawn along its coast to the extreme south-western point.

In the representation of the Azores there is a change, introduced for the first time. All previous maps show these islands in three groups arranged along the same axis from north to south. These groups reappear in the map of 1448, and in addition to them, west of the coast line from Cape Finisterre to Cape Roca, are two others, one of five islands, the other, south of it, of two, and all lying north-west and south-east. These two groups are almost in the true position of the central and eastern Azores, which, in Signor Errera's opinion, they undoubtedly represent, according to the recent re-discovery by the Portuguese; the original three groups of the earlier maps being retained, because it was not then known that the new islands were identical with those already laid down off the Portuguese coast.

There is nothing noteworthy in the delineation of the Madeira and Canary Islands.

Greater care is bestowed upon the African coasts than upon those of Europe, and it is in this part of the map that the inscription is found, to which so much importance is attached. It occurs within an outline of coast, about 200 miles in a south-westerly direction from Cape Verde, at the very edge of the parchment.*

According to C. Desimoni (*Atti della Società Ligure di Storia Patria*, Vol. III, pp. cxiii-cxv, Genova, 1864) the inscription reads:

A xola otinticha. Xe longa a ponente 1500 mia.

In the *Studj biografici e bibliografici sulla Storia della Geografia in Italia*, Vol. II, p. 72, is the following mutilated form:

ixole otintiche 1500.

In the reproduction of the map, published by Dr. T. Fischer (*Sammlung mittelalterlicher Welt-und Seekarten italienischen Ursprungs, u.s.w., Venedig, MDCCCLXXXVI*), the inscription takes this shape:

ixola otinticha || X e longa a ponente 1500 mia.

Mr. Yule Oldham's reading is:

ixola otinticha xe longa a ponente 1500 mia.

According to Signor Errera the true reading of these words is:

ixola otinticha || xe longa a ponēte | 500 | mia.

* Previous readings were from photographic copies of the map. Signor Errera has had the good fortune to examine the original, which is clear and in good condition.

Mr. Oldham translates his text: *authentic island is distant 1500 miles to the west*; and this island he identifies with Brazil. Signor Errera thinks it not impossible that *otinticha* may be one of the many fantastic and unmeaning names which people the unknown Atlantic in the early charts; but he is ready to admit the sense attached to it as a form of the word *autentica*. There, however, he parts company with Mr. Oldham. The reading, *1500 mia*, is shown to be erroneous. In the original map the true figures—500—are marked off, according to the practice of the time, by an upright stroke at each end, but in the copies the second stroke seems to have been overlooked.*

The word *longa* in the inscription is translated *distant* by Mr. Oldham. According to this, *otinticha* is distant 500 miles to the west from Cape Verde, the nearest point on the African coast; but, measured by the scale of the map, the distance is only about 180† miles, and the direction, instead of west, is south-west.

If the word *longa* is to bear the usual meaning of *long* and to describe the extent of *otinticha* itself, as represented on the map, it is inaccurate, for the coast has a westerly extension of not more than 250 miles.

Mr. Oldham maintains that *otinticha* is the most easterly point of Brazil, which may be assumed to be Cape San Roque. From this point to Cape Verde the actual distance is 1,800 miles, or ten times that indicated on the Bianco map. The result of Signor Errera's examination is to relegate the *ixola otinticha* to the world of dreams.

For him, neither the Bianco map of 1448 nor Antonio Galvano's *Discoveries of the World* affords any support to the theory of a Portuguese pre-Columbian discovery of America.

He objects to this theory certain established facts: that the Portuguese of the fifteenth century had absolutely no knowledge of a land to the south-west; that Bianco's mysterious island is not to be found on any of their maps; that their historians are silent on the subject;‡ and that Cabral's accidental discovery of Brazil in the year 1500 took the Government and the nation by surprise.

This should be final, but no man lives to see the end of a theory.

THE JACKSON-HARMSWORTH EXPEDITION.—The steamer *Windward*, which carried this expedition to Franz Josef Land in the

* It appears, none the less, quite distinctly in Dr. Fischer's photographic reproduction of the map, in the library of the American Geographical Society.

† The text reads: *100 miglia*; evidently a printer's error.

‡ Galvano died in 1557, at the age of 54. His compilation, made not long before his death, first appeared in 1563.

summer of 1894, arrived at Gravesend on the 22d of October last, with a report of the year's work.

The party landed at Cape Flora, on Northbrook Island, on the 10th of September, last year, and erected houses. Winter set in soon after. The first care was to secure a supply of fresh meat, and in this Mr. Jackson met with success, the bears and walruses furnishing enough to keep the men in good health for the winter months.

The Archangel house, which was christened *Elmwood* after Mrs. Harmsworth's place in Kent, was found to be an extremely comfortable dwelling. It was built of logs twelve inches square and lined throughout with felt. It was twenty feet square inside, with double windows and double roof, and it gave perfect protection against the weather. The bears sometimes looked in at the window and even rubbed their heads on the glass, but they never tried to break in.

The sun returned, February 23, and on the 10th of March Mr. Jackson and two others started to the northward.

They reached Peterhead, at the entrance to Markham Sound, after four days' journey through fog and driving snow, with the thermometer at 45° below zero. The ponies, which Mr. Jackson had taken with him, stood the climate very well and did excellent service. Mr. Jackson describes the country as

"covered with a perpetual ice sheet, only interrupted at long intervals along the coast by lofty basaltic cliffs, having a steep talus of loose stones and soil. On this are found many sedges, mosses, and Arctic flowering plants, which form a contrast to the snow-covered slopes above as striking as it is pleasant. The country generally is well elevated, attaining an average height of 2,500 feet above the sea. One of the most interesting facts connected with the coast is the number of old sea beaches, some of them being as high as 120 feet above the present shore.

Three depots of stores were established and two boats were left at a point in latitude $81^{\circ} 20'$, for use in the summer.

A second and even harder journey was made in April and May. Many observations for latitude and longitude were taken and geological specimens were collected. Much of the work of the Austrian expedition was found to be inaccurate. On this point Mr. Jackson expresses himself in the following language:

We have entirely altered the map and character of a great portion of Franz Josef Land, and have found a sea and islands where mainland was supposed to exist. We have also carefully mapped Markham Sound, and, of course, laid down our route to the furthest point we reached, $81^{\circ} 20'$ north. Markham Sound and the country further north are totally different from what Payer's map represents them to be, and the character of the small portion of Zichy Land, which borders on Markham Sound, is absolutely unlike the description published in the narrative of the Austro-Hungarian

expedition. Moreover, the mountains in that work cannot be observed even on the clearest day.

The *Windward* will return to Franz Josef Land in June, 1896, with a reinforcement of picked men, and supplies for two years.

ANTARCTIC EXPLORATION.—The *London Times* of Nov. 29 has the following announcement:

We learn with regret that the First Lord of the Admiralty has intimated that he would rather not receive a deputation at the present time on the subject of the renewal of Antarctic exploration under Government auspices. We believe the reason is that all the men and all the resources of the Navy are at present required to place our Fleet in a state of efficiency. The committee that has taken the lead in this movement will possibly decide to make an effort to interest the nation so far as to lead to a subscription sufficient to send out an expedition prepared to do two or three years' continuous work.

THE UNITED STATES BOARD ON GEOGRAPHIC NAMES.—This Board has just issued its Second Report containing the decisions rendered from January, 1892, to September, 1895. Two previous decisions are reversed.

Golovin Sound (Alaska), of the First Report, is changed to GOLOFNIN SOUND, and Woods Holl (south-eastern Massachusetts) is now to be written WOODS HOLE, to the comfort of the stranger, and the dismay of the local patriot.

According to the Executive order constituting the Board, its decisions are to be accepted by the Departments of the Government as the standard authority. Beyond this limit there is evidently no attempt at uniformity in the spelling of geographic names, and the time devoted to the consideration of the subject in geographical congresses cannot be said to have been well spent.

The public is of Dogberry's mind, that to write and read comes by nature, and it will not learn.

Even within a limited sphere, the difficulties in the way of consistent usage are very great, and the conflict of rules is sometimes fatal to one or the other, or both.

The policy of the Board on Geographic Names is set forth at length in the introduction to the First Report. It is there stated (p. 7) among other principles, that

The forms of foreign names recommended for adoption are determined on consultation of established usage, the best authorities upon ethnological and political history and derivation, and current geographic and political information from authentic sources. . . . It (the Board) hopes, however, that the way may be opened in the near future to the adoption throughout of the local forms of these names, and the rejection of the anglicized forms. In such specific cases as have been brought to its attention, it has decided uniformly in favor of the local form.

This local form is defined as that in use by the best authorities in the country having jurisdiction.

This accounts for *Kaffraria*, and *Kamerun* and *Massaua*, but it says nothing for *Kongo* and *Nova Zembla*.

The Portuguese form, Congo, has in its favour four centuries of history, the practice of all nations until within a few years, and the stamp of recognition by the authorities of the French Congo and the Congo State. Why is *Kongo* preferred?

Nova Zembla has prescription for it; but what becomes of respect for the local form, Novaya Zemlia, now almost universally adopted?

The work of the Board has been prosecuted under hard conditions. The members serve without compensation, and it does not appear that provision is made for the publication of their reports.

The total number of decisions is 5,364, including 2,791 names of counties in the United States. These are printed on pp. 47-56 of the First Report.

THE BOLLETTINO OF THE ITALIAN GEOGRAPHICAL SOCIETY, in a note on the Italian population of New York, makes the following statement:

The American statistics cannot be taken as a basis. It will be sufficient to quote the fact that the census of 1890 gave only 182,000 Italians living in the United States, while it is certain that the number then approached and now exceeds 500,000.*

A wise man has said that nothing is certain, but death and taxes. There may be, at the present time, 500,000 Italians in the United States, but the number of 182,580 in the Census returns of 1890 is nevertheless to be accepted with confidence.

The Italian immigration was for many years insignificant. It amounted for the 60 years, 1821-1880, to 87,774, according to the statistics of the Italian Government,† but according to the tabulated statement in the U. S. Census Report for 1890 (*Population, Part 1, p. lxxx.*) the total was 81,249. The difference is accounted for by the immigration into Canada and British Columbia, which are frequently included, in the Italian returns, with the United States, and in some degree by the fact that the American Census is taken in the middle of the calendar year.

* Non si possono prendere per base le statistiche americane; basterà citare come il censimento del 1890 desse per residenti agli Stati-Uniti soli 182,000 Italiani, mentre è certo che allora avvicinavano e ora passano il mezzo milione.

(Bollettino della Soc. Geog. Italiana, Ser. iii, Vol. viii, Fas. x, p. 325.)

† The figures are taken from the *Statistica della Emigrazione Italiana all'Estero nel 1881, confrontata con quella degli Anni Precedenti, ecc.* Roma, 1882: Published by the *Direzione della Statistica Generale*.

In 1880 the number of resident Italians was 44,230. There were added to these in the next 10 years 208,792, and the apparent total for the year 1890 is, therefore, 253,022.

From this total must be deducted, however, the mortality for the 10 years, and the immigration into Canada.*

It is well known that for the most part the Italians take up their abode in the large cities of the country. The annual death-rate of the white population in 12 of these cities, was:†

Newark	28.67	per 1,000
New York.....	28.47	“ “
Chicago.....	21.03	“ “
Philadelphia.....	22.28	“ “
Brooklyn.....	25.41	“ “
St. Louis.....	18.15	“ “
Boston.....	24.62	“ “
San Francisco.....	23.57	“ “
New Orleans.....	25.41	“ “
Buffalo.....	19.83	“ “
Baltimore.....	22.61	“ “
Pittsburg.....	21.56	“ “

The average of these figures is 23.47; but those who are acquainted with the conditions of Italian life in America cannot doubt that the death-rate among people of that nationality is very nearly as high as that recorded for the City of New York. If the annual rate were no higher than 23.47 per 1,000, it would account for 59,353 persons of the apparent total for 1890, and leave 11,089 for the Canadian quota. If the death-rate is estimated at 27 per 1,000, the apparent total for 1890 will be reduced to 184,712, which exceeds the Census figures for 1890 by 2,132 persons, to be looked for in Canada and British Columbia.

There has been a great increase in the volume of the immigration for the past five years. The *Almanach de Gotha* for 1895, taking its figures from the Italian official publication, makes the number of departures for the United States alone, in the four years, 1890-1893, 185,029. An approximate total for the beginning of the year 1895 may be reached by adding together these figures:

Census return for 1890.....	182,580
Immigration, 1890-1893.....	185,029
Estimate for 1894.....	50,000
	<hr/>
	417,609

* This latter, though an unknown quantity, must not be forgotten.

† Compendium of the Eleventh Census, 1890. Part II, Miscellaneous Statistics, p. 5.

In a question of this kind, it does not appear that any other authority can take the place of the official census.

EXPLORATION OF TALAMANCA.*—The report of this exploration, performed by the late William M. Gabb in 1873–1874, is now published for the first time in this translation from the English manuscript. It is preceded by an introduction in which Señor Pittier, the director of the *Instituto*, pays a tribute to the memory of Mr. Gabb, and an appendix contains a classified list of the batrachia and reptilia collected, and described in 1875 by Dr. E. Cope, of Philadelphia.

The district of Talamanca occupies the south-eastern corner of Costa Rica.

It is watered by the rivers Tilorio, or Changuinola, and Tiliri, or Sixsola,† and along the coast the land is low and marshy, behind a narrow strip of sand thrown up by the sea.

In the interior the land rises rapidly and the hills sometimes reach a height of thousands of feet. In the lowlands the water covers the earth in the rainy season to a depth of ten feet. Near the coast grows a dense vegetation of dwarf palms, and in the driest spots the agave flourishes.

In the centre of Talamanca, on the Tiliri River and about the mouths of its principal tributaries, there is an area of undulating plains, covering between 100 and 150 square miles of soil, for the most part sandy, even rocky in some places, and in others showing beds of clay. This region needs only to be cleared of its forests to become agricultural land of the best quality.

The rising ground is of uniform character. Except in the valley of Cabécar, the hills of Talamanca have very narrow crests, only a few feet in width, and the sides slope at so steep an angle that it is no easy matter to find a piece of ground suitable for cultivation. Urén, the most thickly peopled district, is almost stripped of forests and is laid out in plantations of maize, plantains and sugar cane and in pasture lands, where not even a stump of a tree appears.

Bribri, on the Larí River, probably the Biceita of the Spaniards, resembles Urén in its features, but is much less developed.

Cabécar extends to the sources of the river Coen. At the beginning of the 18th century it was the centre of a most important

* Anales del Instituto Fisico-Geografico Nacional de Costa Rica. Tomo V. 1892, pp. 71–90. 4to. San José de Costa Rica, 1895

† Tilorio and Tiliri are the native names and Gabb uses them in preference to the others, which are of Mosquito origin.

colony. It was united by a good road to Cartago, and it is said that very rich mines existed in the neighborhood; but the indications are that the principal industry of those days was stock-raising. Situated as it is in the heart of the cordillera Cabécar might easily be made accessible. A road of 25 miles in length would bring it into communication with the Tiliri River, at the point where it is permanently navigable and practically unaffected by the freshets of the rainy season.

The soil is the richest in Talamanca, composed as it is of the same black earth which supports the famous coffee plantations around the city of San José.

At the head-waters of the Taberí, which are reached by following the old Spanish road, the country puts on another aspect, of rugged mountains covered with impenetrable woods. Except by a few Indians, descendants of the refugees of 1709, the region is uninhabited.

The valley of the Tilorio River is narrow and precipitous and the whole population is reduced to one hundred and three persons. The river bed is so full of rocks that navigation is out of the question, and the descent to the banks is excessively steep.

In the Zhorquin valley, however, there are some good farming lands and the remains of former plantations testify to a comparatively dense population, now disappeared.

According to the natives, the Tilorio takes its rise in a lake on the bare top of a mountain, once a volcano.

Mr. Gabb made the ascent of the Pico Blanco, previously unattempted. He followed the hunter's track along the mountain ridge between the Urén and the Larí, scaling precipices, clinging to the face of the rocks and crossing gullies by improvised bridges. The party was composed of twenty-one persons, mostly carriers, and the peak was reached after seven days' struggle through the dark, wet forest.

The Pico Blanco, the highest point of Talamanca, has an elevation of 9,562 feet. The Urén drains the north-eastern slope, while the Larí receives the waters of the northern side. The streams that descend the southern slope flow into the Pacific.

It has always been asserted that the Irazú (near Cartago) is the only mountain from which both oceans may be seen at the same time. The view from the Pico Blanco is incomparably more extended. The stretch of the Caribbean between Limon and Puerto Viejo was clearly visible, together with the islet of Uvita and the breakers on the reefs of Punta Cajuita; while, on the other hand,

the Pacific Ocean, thirty or forty miles distant, seemed to be at the feet of the observer. From the summit the crest descends rapidly for some miles till it is not much more than 3,000 to 3,500 feet above the sea. It then rises again, to sink once more between the Diparí and the upper valley of the Coén, which is dominated by a remarkably beautiful peak. Beyond this depression, the crest has a medium altitude of between six thousand and seven thousand feet.*

The climate of Talamanca differs little from that of other parts of the country. It is very unhealthy near the coast and on the lower course of the streams, and the fevers are frequently fatal, even to the Indians; but in the interior natives of northern Europe and America easily become acclimated, on the single condition of living with prudence.

In the higher regions the climate is in every respect a good one, and the valleys of the Urén, Bribri and Cabécar are admirably suited to the people of the temperate zone.

There are two dry and two wet seasons of the normal year. The rains begin in May or June and last till the end of July; August and September are dry; showers fall now and then in October, and the next three months bring abundant rain; February, March and April are one long, dry season.

A large part of the Report is devoted to the geology of this interesting region. Briefly described, it is of recent sedimentary rocks, almost all metamorphic, and at various points on the coast small masses of yet more recent rock make their appearance.

* Señor Pittier makes the following comment on this passage :

“ This description of the part of the Cordillera of Talamanca which is to the north-westward of the Pico Blanco does not agree with the facts. The maps of the English Admiralty assign to that peak an altitude of 10,200 feet (3,109 m.), but I hold to the opinion that the figure given in the present Report more nearly approaches to the truth because I have had an opportunity to compare the barometer (made by Green) with which Gabb conducted his observations, and in addition to this the revision of the original calculations, which also came into my hands by accident, convinced me of their accuracy and of the correctness of the process followed in the operations. But it may be affirmed that in the whole of the main Cordillera of Costa Rica, from the Pico Blanco to the Cuello de las Cañas, there exists no depression lower than 5,000 feet, or about 1,500 metres. Moreover, the Pico Blanco is by no means the most lofty summit of Talamanca. The Cerro de Buena Vista, which occupies nearly the position of the Cerro de la Laguna, or Montaña Dota, in the maps of Gabb and his predecessors, is 3,299 metres (10,824 feet) in height; the Chirripó Grande, the Mount Walker of the North American hydrographers, which lifts its mighty mass to the west of San José de Cabécar, towards the head-waters of the Boali, undoubtedly surpasses it, and the mean level of the main Cordillera exceeds 7,000 feet (2,100 metres).

The nucleus of the great interior Cordillera consists of granite and syenite, traversed by dykes of volcanic origin, identical with those of northern Costa Rica.

THE INSTITUTO GEOLÓGICO DE MÉXICO announces the death of its founder and director, Don Antonio del Castillo, in the City of Mexico, on the 27th of October last.

POPULATION OF BERLIN.—A census, taken on the 2d of December, showed that the population of Berlin was 1,674,112. The increase for the five years, 1880–1885, was 16 per cent.; that for the period 1885–1890 was 20 per cent.; and for 1890–1895 only 6 per cent. This falling off is explained by the growth of the suburbs.

MISS KINGSLEY IN WEST AFRICA.—The London *Times* of December 6 reports the adventures of an English lady, Miss Kingsley, who left Liverpool a year ago to travel for the second time in West Africa for the purpose of collecting specimens of the fishes and studying, at the same time, the customs of the natives.

Landing at Old Calabar, Miss Kingsley proceeded to the French Congo and expressed her desire to explore the gorilla country and to ascend the Ogowe River. The authorities could not guarantee safe navigation beyond Lambaréné, 130 miles from the sea.

The start was made in a canoe with a crew of eight men. The canoe was upset many times in the rapids, and there were several occasions when Miss Kingsley barely escaped with her life.

Travelling overland through the country of the cannibal Fans (Fangwe), the party found every town in a state of defence, and at each one the people stopped the expedition and wanted to eat the three Fans, elephant men, who were with Miss Kingsley. In all this country there was no burial place, but in most of the mud huts pieces of human flesh were kept for provisions.

Many large gorillas were seen, but they made off as the men approached, except in one case, when the animal attacked and was killed by the elephant men. This gorilla was 5 feet 7 inches in height.

Miss Kingsley crossed the unexplored lake N'Covi (N'Comi?), which is about 10 miles wide and 15 miles in length. She crossed also the range known as the Sierra de Crystal, which has an altitude of from 6,000 to 8,000 feet,* and is reached through a swampy country.

Returning to the coast of the Gaboon, Miss Kingsley explored

* Previous estimates vary between 1,800 and 3,000 feet.

Corisco Island. She afterwards ascended the Kamerun Mountain, and the Rumpi range, farther to the northward. This range, according to the *Times*, is inhabited up to a height of 7,000 feet, but Kiepert's map ascribes to it an elevation of not more than 6,000 feet* (1,800 metres).

It is probably confounded in the report with the Kamerun, as immediately after it is stated that the great crater is 10,000 feet above the sea, and that there are 70 craters in the Kamerun Mountains.

The fishes collected in this expedition were fresh-water specimens, destined for the British Museum.

THE NOR'-WESTERS OF CANTERBURY.—In the *New Zealand Alpine Journal*, Vol. II, No. 8, the editor, Mr. J. T. Meeson, has a paper on the hot, dry winds that blow from the north-west across the mountains and over the eastern plains of both islands, and are felt in their greatest intensity in the province of Canterbury, in the South Island.

These winds are most frequent in the late spring and summer, from October to March, with their greatest strength, perhaps, in February, at the time of the wheat harvest. The Nor'-Wester comes on as follows: the wind blows for two or three days from the north-east and then dies away, or veers to the north; light, cirrus clouds drift in the upper sky from the north-west; the barometer falls, sometimes very fast, and the thermometer rises. A few hours of delicious weather succeed and then, within twenty-four hours or less, comes the north-west wind, gentle, at first, and even cool, with an occasional warm puff. A beautiful arch of cumulus clouds stretches across the heaven from the north to the west or south-west, and below it the sky is of a peculiar, soft blue. The arch sometimes remains through the storm; sometimes it is dissipated in a few hours. The force of the wind increases to a gale, with clouds of dust and a stifling heat. Vegetation droops and withers, and human beings suffer with lassitude, headache and neuralgia. The mountains, to the west, are covered with black cloud—the true *Föhn wall*—and there heavy rain falls.

This state of things lasts sometimes for days, sometimes for a few hours, when the wind veers to the west, the barometer rises, the thermometer falls, and a cold south-west wind sets in for a

* The map of the Kamerun Coast Region, in the *Mittheilungen aus den Deutschen Schutzgebieten*, VIII Band, 1 Heft, makes the altitude of the Rumpi Berge 1,500 metres (4,921 feet).

time, and often the process begins again. Mr. Meeson regards this hot wind as a true *Föhn*, and he accounts for it in this way: The north-west wind, charged with moisture, strikes the west coast at a temperature of 60° Fahr. By the time it reaches the tops of the mountains at 9,000 feet, it loses 30° of heat, while in descending the eastern side of the mountains it gains 50° and reaches the Canterbury plains as a dry wind, with a temperature of 80° Fahr.* To this temperature is added the heat always developed in front of a cyclone.

The Nor'-Wester is, on the whole, a beneficial agent. Some persons hold that it is essential to the maturity of the wheat crop; it kills or blows away the germs of disease, purifies the atmosphere, melts the snows and plays a great part in the development of animal and vegetable life.

* Julius Hann and others have shown that in ascending and descending wet air loses or gains 1° Fahr. for every 300-400 feet, and dry air 1° for every 183 feet.